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Design, Development and Preliminary Student Evaluation of Virtual Field Guides as aids to teaching and learning in the Earth sciences

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In Universities the benefits of teaching and learning through fieldwork has been brought under closer examination in recent years (e.g. Andrews et al., 2003) and the notion of supporting fieldwork in the Geography, Earth and Environmental Science (GEES) disciplines has been gathering momentum over the past decade as evidenced by conferences on 'Supporting fieldwork using information technology' (Maskall et al., 2007) and a Higher Education Academy GEES Virtual Fieldwork Conference at University of Worcester (May 2007). Virtual environments and e-learning resources have been shown to help students become active rather than passive learners by appealing to their multi-sensory learning ability with interactive media (Fletcher et al., 2002; 2007).

Research on glacial and fluvial processes has been conducted since 2003 by Liverpool John Moores University (LJMU) staff, sometimes in collaboration with other Universities, at field sites in the French Alps, Swiss Alps and Cariboo Mountains in British Columbia. A virtual field guide (VFG) (www.virtualalps.co.uk) has been developed which uses maps, site photos, panorama movies, video clips, a google earth tour, student exercises using hydrological and glacial datasets collected in the field and revision exercises. A preliminary evaluation of this learning resource has been carried out with two groups of LJMU students and an article written (Stott et al. 2009a).

The Ingleton Waterfalls VFG (http://www.ljmu.ac.uk/BIE/ingleton/) was developed by LJMU staff to meet the needs of Foundation degree and undergraduate students. A workshop was presented at the Earth Science Teachers Association 2008 Annual Conference at LJMU, and a subsequent article written (Stott et al. 2009b). The final section of this presentation will summarise some staff perspectives and raises some questions and issues concerned with development and accessibility of VFGs in the light of new developments of a 'semantic web' at LJMU (Carmichael, 2009).

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